

a³ 5. (Amended) A micromechanical filter apparatus for filtering signals to obtain a desired passband of frequencies, the apparatus comprising:
a substrate;
a first micromechanical resonator; and
a support structure anchored to the substrate to support the resonator above the substrate wherein the support structure and the resonator are both dimensioned so that the resonator is isolated from the support structure during resonator vibration wherein energy losses to the substrate are substantially eliminated and wherein the apparatus is a high-Q apparatus.

a⁴ 13. (Amended) The apparatus as claimed in claim 5 wherein the resonator is a silicon-based resonator.

14. (Amended) The apparatus as claimed in claim 5 wherein the resonator is a diamond-based resonator.

a⁵ 19. (Amended) The apparatus as claimed in claim 5 further comprising a second micromechanical resonator, the first and second resonators forming a pair of intercoupled end resonators.

a⁶ 21. (Amended) The apparatus as claimed in claim 19 further comprising an inner resonator intercoupled to the end resonators.

a⁷ 23. (Amended) The apparatus as claimed in claim 21 further comprising a plurality of coupling links for coupling the inner resonator to the end resonators.

Please add new claims 26 through 32.

a⁸ 26. (New) The method as claimed in claim 1 wherein the resonator has a Q greater than 5000.

27. (New) The apparatus as claimed in claim 5 wherein the resonator has a Q greater than 5000.

28. (New) A micromechanical filter apparatus for filtering signals to obtain a desired passband of frequencies, the apparatus comprising:

a substrate;

a plurality of intercoupled micromechanical elements capable of resonant vibration; and

a support structure anchored to the substrate to support the elements above the substrate wherein the support structure and the elements are attached at one or more locations sustaining substantially no translational movement during resonant vibration of the elements.

29. (New) The apparatus as claimed in claim 28 wherein the plurality of intercoupled micromechanical elements comprises a first resonant beam and a second resonant beam, wherein the support structure comprises a first support beam and a second support beam attached to the first resonant beam and the second resonant beam, respectively, and wherein the first and second support beams sustain substantially no translational movement during resonant vibration of the elements.

30. (New) The apparatus as claimed in claim 29 wherein the plurality of intercoupled micromechanical elements comprises a third resonant beam coupled to the first resonant beam and the second resonant beam via a pair of coupling beams.

31. (New) A micromechanical filter apparatus for filtering signals to obtain a desired passband of frequencies, the apparatus comprising:

a substrate;

a plurality of intercoupled micromechanical elements capable of resonant vibration; and

a support structure anchored to the substrate to support the elements above the substrate wherein the support structure comprises a support beam, and wherein the support

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beam is attached to the elements such that the support beam sustains substantially no translational movement during resonant vibration of the elements.

32. (New) The apparatus as claimed in claim 31 wherein the plurality of intercoupled micromechanical elements comprises a first resonant beam, a second resonant beam, and a third resonant beam, and wherein the third resonant beam is coupled to the first resonant beam and the second resonant beam via a pair of coupling beams.
